VELS INSTITUTE OF SCIENCE, TECHNOLOGY AND ADVANCED STUDIES
SCHOOL OF ENGINEERING

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CREDIT DISTRIBUTION

B.E (Computer Science and Engineering)										
Credits Per Semester										
S. No	Course Category	1	2	3	4	5	6	7	8	Total Credits
1	HSC		3	2	2	2	2			11
2	BSC	8	8	4	7					27
3	ESC	10	7	4						21
4	PCC			13	15	15	11	4		58
5	PEC					3	7	7	3	20
6	OEC					3	3	6	6	18
7	Project							5	10	15
8	MC									0
	TOTAL	18	18	23	24	23	23	22	19	170

HSC	Humanities and Social Science Courses
BSC	Basic Science Courses
ESC	Engineering Science Courses
PCC	Professional Core Courses
PEC	Professional Elective Courses
OEC	Open Elective Courses
EEC	Employability Enhancement Courses
MC	Mandatory Courses

Category	Course Title	Lecture	Tutorial	Practical	Credits	CA	SEE	Total
B.E CSE (Regulation 2022-23)								
SEMESTER 1								
BSC	Engineering Chemistry	3	-	-	3	40	60	100
BSC	Mathematics I(Calculus and Linear Algebra)	3	1	-	4	40	60	100
ESC	Programming for Problem Solving	3	-	-	3	40	60	100
ESC	Basics of Civil and Mechanical Engineering	3	-	-	3	40	60	100
ESC	Workshop and Manufacturing Practices	1	-	4	3	40	60	100
BSC	Chemistry Laboratory	-	-	2	1	40	60	100
ESC	Programming for Problem Solving Laboratory	-	-	2	1	40	60	100
MC	Student Induction Program	-	-	-	-	-	-	-
MC	Universal Human Values	2	-	-	-			100
		15	**1**	**8**	**18**			
SEMESTER II								
HSC	English	2	-	-	2	40	60	100
BSC	Physics	3	-	-	3	40	60	100
BSC	Mathematics II	3	1	-	4	40	60	100
ESC	Basic Electrical and Electronics Engineering	3	-	-	3	40	60	100
ESC	Engineering Graphics and Design	1	-	4	3	40	60	100
HSC	English Laboratory	-	-	2	1	40	60	100
BSC	Physics Laboratory	-	-	2	1	40	60	100
ESC	Basic Electrical and Electronics Engineering Laboratory	-	-	2	1	40	60	100
MC	Constitution of India	2	-	-	-			100
		14	**1**	**10**	**18**			
SEMESTER III								
BSC	Mathematics III	3	1	-	4	40	60	100
ESC	Python Programming	3	1	-	4	40	60	100
PCC	Operating Systems	3	-	-	3	40	60	100
PCC	Data Structures	3	1	-	4	40	60	100
PCC	Design and Analysis of Algorithms	3	-	2	4	40	60	100
PCC	Operating Systems Lab	-	-	2	1	40	60	100

PCC	Data Structures using Python Lab	-	-	2	1	40	60	100
HSC	Personality Development I (Effective Technical Communication)	2	-	-	2	40	60	100
MC	Basic Life Skills	2	-	-	-			100
		19	**3**	**6**	**23**			

		SEMESTER IV						
BSC	Mathematics IV (Random Process and Queuing Theory)	3	1	-	4	40	60	100
PCC	Computer Organization and Architecture	3	-	-	3	40	60	100
PCC	Database Management Systems	3	-	-	3	40	60	100
PCC	Computer Networks	3	-	-	3	40	60	100
PCC	Introduction to AI & ML	3	-	2	4	40	60	100
PCC	Database Management Systems Lab	-	-	2	1	40	60	100
PCC	Computer Networks Lab	-	-	2	1	40	60	100
HSC	Personality Development II	2	-	-	2	40	60	100
BSC	Environmental Science and Engineering	3	-	-	3	40	60	100
MC	Gender Sensitivity Related Course	2	-	-	-			100
		22	**1**	**6**	**24**			

		SEMESTER V						
PCC	Java and Web Programming	3	-	-	3	40	60	100
PCC	Computer Graphics and Multimedia	3	1	-	4	40	60	100
PEC	Professional Elective Course - I	3	-	-	3	40	60	100
OEC	Open Elective Course - I	3	-	-	3	40	60	100
PCC	Fundamentals of Blockchain and Use cases	3	-	2	4	40	60	100
PCC	Java and Web Programming Lab	-	-	2	1	40	60	100
PCC	Computer Graphics and Multimedia Lab	-	-	2	1	40	60	100
HSC	Personality Development III	2	-	-	2	40	60	100

	Industrial Training/ Mini Project/ MOOC Course (NPTEL/SWAYAM/CourseEra/ Mathworks) - Minimum 4 weeks							
PCC	Industrial Training/ Mini Project/ MOOC Course (NPTEL/SWAYAM/CourseEra/ Mathworks) - Minimum 4 weeks	-	-	4	2			100
		17	**1**	**10**	**23**			
	SEMESTER VI							
PCC	.Net Programming	3	-	-	3	40	60	100
PCC	Theory of Computation and Compiler Design	3	1	-	4	40	60	100
PEC	Professional Elective Course - II	3	-	-	3	40	60	100
PEC	Professional Elective Course - III	3	-	2	4	40	60	100
OEC	Open Elective Course - II	3	-	-	3	40	60	100
PCC	.Net Programming Lab	-	-	2	1	40	60	100
PCC	Compiler Design Lab	-	-	2	1	40	60	100
HSC	Personality Development - IV	2	-	-	2	40	60	100
PCC	Summer Internship (4 weeks)	-	-	4	2			100
		17	**1**	**10**	**23**			
	SEMESTER VII							
PCC	Full Stack Web Development	3	-	-	3	40	60	100
OEC	Open Elective Course - III	3	-	-	3	40	60	100
OEC	Open Elective Course - IV	3	-	-	3	40	60	100
PEC	Professional Elective Course - IV	3	-	-	3	40	60	100
PEC	Professional Elective Course - V	3	-	2	4	40	60	100
PCC	Full Stack Web Development Lab	-	-	2	1	40	60	100
Project	Project Phase I	-	-	10	5	40	60	100
		15	**0**	**14**	**22**			
	SEMESTER VIII							
PEC	Professional Elective Course - VI	3	-	-	3	40	60	100
OEC	Open Elective Course - V	3	-	-	3	40	60	100
OEC	Open Elective Course - VI	3	-	-	3	40	60	100
Project	Project Phase II	-	-	20	10	40	60	100
		9	**0**	**20**	**19**			

LIST OF ALL BASIC SCIENCE COURSES (BSC)

S.NO	COURSE TITLE
1	Physics
2	Mathematics II
3	Physics Laboratory
4	Chemistry
5	Mathematics I
6	Chemistry Laboratory
7	Mathematics III
8	Environmental Science and Engineering

LIST OF ALL HUMANITIES AND SOCIAL SCIENCES COURSES

S.NO	COURSE TITLE
1	English
2	English Laboratory
3	Personality Development I (Effective Technical Communication)
4	Personality Development II
5	Personality Development III
6	Personality Development IV

LIST OF ALL ENGINEERING SCIENCE COURSES

S.NO	COURSE TITLE
1	Basic Electrical and Electronics Engineering
2	Engineering Graphics and Design
3	Basic Electrical and Electronics Engineering Laboratory
4	Programming for Problem Solving
5	Basics of Civil and Mechanical Engineering
6	Workshop and Manufacturing Practices
7	Programming for Problem Solving Laboratory
8	Electronic Devices and Circuits

LIST OF ALL PROFESSIONAL ELECTIVE COURSES

S.NO	COURSE TITLE
	PROFESSIONAL ELECTIVE
1	APPLIED CRYPTOGRAPHY
2	BIG-DATA PROGRAMMING
3	BIOINFORMATICS
4	CLOUD COMPUTING
5	CRYPTOGRAPHY AND NETWORK SECURITY
6	CYBER FORENSICS
7	DATA WAREHOUSING AND DATA MINING
8	E- COMMERCE
9	ETHICAL HACKING
10	GAME THEORY
11	INFORMATION RETRIEVAL
12	INTERNET OF THINGS
13	OBJECT ORIENTED ANALYSIS AND DESIGN
14	SOFT COMPUTING
15	SOFTWARE ENGINEERING
16	SOFTWARE PROJECT MANAGEMENT
17	SOFTWARE QUALITY ASSURANCE
18	SOFTWARE TESTING
19	SYSTEM SOFTWARE
20	INTRODUCTION TO DATA ANALYTICS
21	USER INTERFACE DESIGN
22	VIRTUAL REALITY
23	AGILE METHODOLOGIES

S.NO	COURSE TITLE
24	INFORMATION SECURITY
25	SOFTWARE DEFINED NETWORKS
26	APPLICATIONS OF AI

LIST OF ALL PROFESSIONAL ELECTIVE COURSE (Blended - Theory + Practical)

S.NO	COURSE TITLE
	PROFESSIONAL ELECTIVE
1	DATA EXPLORATION AND VISUALIZATION
2	BIG DATA ANALYTICS
3	NOSQL DATABASE
4	GAME PROGRAMMING
5	ROBOTICS AND ITS APPLICATIONS
6	CONCEPTS OF VIRTUAL AND AUGMENTED REALITY
7	DIGITAL IMAGE PROCESSING

LIST OF ALL MANDATORY COURSES

S.NO	COURSE TITLE
1	CONSTITUTION OF INDIA
2	STUDENT INDUCTION PROGRAM
3	UNIVERSAL HUMAN VALUES – 2
4	BASIC LIFE SKILLS
5	GENDER CULTURE TECHNOLOGY

LIST OF OPEN ELECTIVE COURSES OFFERED TO OTHER PROGRAMS

S.No	Course
OCSE01	DATA STRUCTURES AND ALGORITHMS
OCSE02	INTERNET OF THINGS
OCSE03	PYTHON PROGRAMMING
OCSE04	ARTIFICIAL INTELLIGENCE
OCSE05	CLOUD COMPUTING
OCSE06	E-COMMERCE
OCSE07	ETHICAL HACKING
OCSE08	BLOCK CHAIN TECHNOLOGIES
OCSE09	INTRODUCTION TO DATA ANALYTICS
OCSE10	FUNDAMENTALS OF AI AND ML